

Abstract

Aberrations in an optical system can be detected and measured using a method comprised of a test target in the object plane of a projection system and imaging a photoresist film with the system. The test target comprises at least one open figure which comprises a multiple component array of phase zones, where the multiple zones are arranged within the open figure so that their response to lens aberration is interrelated and the zones respond uniquely to specific aberrations depending on their location within the figure. This is a unique and new method of detecting a variety of aberration types including coma, spherical, astigmatism, and three-point through the exposure of a photoresist material placed in the image plane of the system and the evaluation of these images. The method of the invention offers an advantage over other methods because of the sensitivity to particular aberration types, the unique response of the multiple zones of the test target to aberrations, and the ease with which aberrations can be distinguished.